

CLAIMS

1. A liquid crystal display apparatus comprising:

a first substrate provided with a reflective pixel electrode which reflects light,

a second substrate in which a transparent electrode facing said reflective pixel electrode is formed and which is arranged in parallel with said first substrate,

a liquid crystal enclosed between said first substrate and said second substrate,

a backlight applying illumination light from the back surface side of said first substrate, and

a light focusing plate including a number of line-shaped prisms which focus illumination light from said backlight onto arrangement of the reflective pixel electrodes;

wherein a portion having gradation of reflectance, in which the reflectance is low on the inner side and continuously changes to be gradually high toward the outer side, is provided in said reflective pixel electrode for each pixel unit.

2. A liquid crystal display apparatus according to claim 1,

wherein said portion having gradation of reflectance is provided in said reflective pixel electrode such that the reflectance continuously changes in two horizontal directions or in four directions of horizontal and vertical directions.

3. A liquid crystal display apparatus according to claim 1, wherein said light focusing plate includes a first sheet member which is made of synthetic resin and in which convex line-shaped prisms having a predetermined refractive index are formed and

the tip of said line-shaped prism is in contact with the back surface side of said first substrate to form an air chamber between the line-shaped prisms and the substrate.

4. A liquid crystal display apparatus according to claim 1, wherein said line-shaped prisms are formed to continue only in the lateral directions with an interval equal to a pixel pitch in the longitudinal direction or with a $1/n$ (where n is a natural number of 1 or more) interval of the pixel pitch.

5. A liquid crystal display apparatus according to claim 4, wherein said line-shaped prism has a triangular shape or a dome shape.

6. A liquid crystal display apparatus according to claim 1, wherein said light focusing plate includes: a first sheet member made of synthetic resin in which convex line-shaped prisms having a predetermined refractive index are formed and a second sheet member made of synthetic resin which is integrally provided on the surface of said first sheet member, where said

line-shaped prisms are formed, and which has a lower refractive index than that of said first sheet member; and both sides of the first sheet member and second sheet member are planarized.

7. A liquid crystal display apparatus according to claim 6, wherein said light focusing plate includes said first sheet member having the refractive index of 1.60 or more and said second sheet member having the refractive index of 1.50 or less and the thickness of said light focusing plate is in the range of 0.1mm or more and 2.0mm or less.

8. A liquid crystal display apparatus according to claim 6, wherein said line-shaped prisms are formed to continue only in the lateral directions with an interval equal to a pixel pitch in the longitudinal direction or with a $1/n$ (where n is a natural number of 1 or more) interval of the pixel pitch.

9. A liquid crystal display apparatus according to claim 6, wherein said line-shaped prisms are formed of a combination of triangular shapes.